



Virginia WILDLIFE

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Commission photo by Kesteloo

Whiling away the time, waiting for the duck season to come in at noon, Jack Rueger of Richmond was fishing with a casting rod and gold spoon in James City County. The bite felt like the bottom, but turned out to be a 12-pound, 27-inch largemouth bass.

Virginia WILDLIFE

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A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting and Fishing in Virginia

COMMONWEALTH OF VIRGINIA



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Cover

Commission photo by Kesteloo

The muskrat (*Ondatra zibethica*) Virginia's most important furbearer. One of the two sub-species is found in every county in the state. Virginia trappers focus their attention on this large rodent year after year, yet the annual harvest is nearly always bountiful.

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Reflections and Resolutions

JANUARY is an ideal month for reflection and meditation. Silent, windless, beneath an umbrella of immovable gray clouds, the first dawn of the new year is like an empty hall in a deserted house. Sounds carry far and you can hear every living thing. If you're out in the hickory woods after bushytails and the frosty air has put a damper on squirrel activity, a thousand and one things will cross your mind. How wonderful the New Year with all its grandeur and blessings; how good to be alive and out and away from irritations; how good the wild holly tree with its berries crimson and leaves of emerald paint; how good the brook sounds in the hemlocks, and how friendly the *chi-a-dee-dee, day-day-day* of the little black-capped chickadee as he rolls himself under an evergreen bough, prone on finding a winter morsel. Or perhaps you're in a chilly duck blind and long moments of inactivity cause you to begin seeing things, such as winter flies that take on the blurred appearance of a blue-winged teal or a low-flying mallard. You shake your head and return to your senses and start thinking again.

"The months of the year, from January up to June," according to that distinguished dean of naturalists, Aldo Leopold, "are a geometric progression in the abundance of distractions. In January one may follow a skunk track, or search for bands on the chickadees, or see what young pines the deer have browsed, or what muskrat homes the mink have dug, with only an occasional and mild digression into other doings. January observation (and reflection) can be almost as simple and peaceful as snow, and almost as continuous as cold. There is time not only to see who has done what, but to speculate why."

So January is a good month in which to think a little, re-appraise ourselves, reflect and meditate, and pass judgment upon our well-being. We who love the outdoors surely can stand this annual re-examination and profit well by any good intentions we wish to make. A man of great wisdom once said: *The solitary side of our nature demands leisure for reflection upon subjects on which the dash and the whirl of daily business, so long as its clouds rise thick about us, forbid the intellect to fasten itself.*

Another man of equally great foresight, Arthur Warwick, said this about the importance of serious contemplation: "Meditation is a busy search in the storehouse of phantasy for some ideas of matters, to be cast in the moulds of resolution into some forms of words or actions; in which search, when I have used my greatest diligence, I

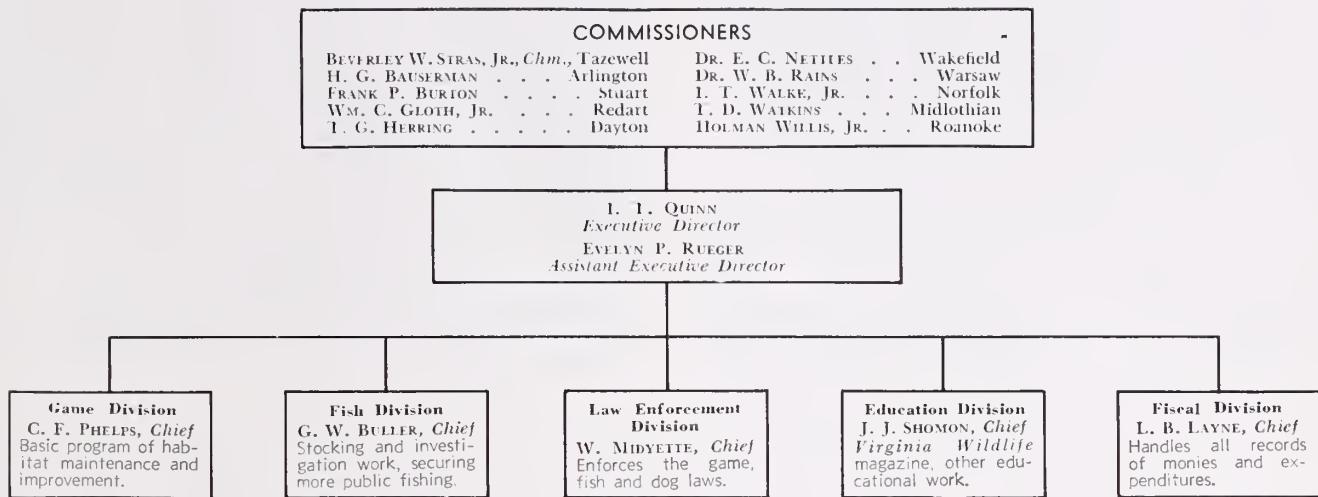
find this is the best conclusion, that to meditate on the best is the best of meditations; and a resolution to make a good end is a good end of my resolutions."

To many of us the idea of making resolutions is passed over lightly because we think we can't, or will not, keep them. Yet, there is merit in self reappraisal and there is every reason why the outdoors-loving man should pause and reflect upon his past and future conduct. Society lives by rules and man if he is to progress must strive constantly to live by them and improve.

In our outdoor world we need the zealous observation of certain rules—rules of conduct, let us say—for our future depends upon it. We shall not call them resolutions, but ideas maybe, ideas and thoughts we can well afford to reflect upon when the snows lie deep and long January hours welcome speculation. Here are a half-dozen worth thinking about.

1. As man, am I worthy of the blessings of abundance and consider my opportunity to go afield a privilege rather than an inherited right?
2. Just how ethical am I? Do I observe the established good rules of conduct in outdoor recreation or do I stretch a regulation here, a point there, to satisfy my own vanity?
3. How about living things? Do I have respect and admiration for all God-created living things—do I respect their right to life as I do my own?
4. Do I so conduct my life that a portion of my "so-called privileges" is left for the morrow when others may enjoy what I have enjoyed?
5. Am I just a "taker" and not a "giver?" How much have I given of myself to make for a better, safer, more abundant outdoor world?
6. How cooperative am I? Do I help or obstruct the work of conservation agencies and groups? Do I lay aside my personal prejudices and animosities and strive to bring about a more complete cooperative spirit between state and federal agencies and volunteer conservation organizations so that both public and private agencies might better be able to arrive at a more intelligent understanding of our natural resource problems?

These and many more things we can reflect upon with profit, especially at a time, as Emerson put it, *when ye cold winds blow at January's call and on whistling wings and with white flakes bestrew, the Earth.*—J. J. S.



YOUR GAME COMMISSION

*what it is and
what it does*

By BEVERLEY W. STRAS, JR.
Chairman, Commission of Game and Inland Fisheries

THIS information is prepared for the many thousands of Virginian citizens, including growing boys and girls, who repeatedly ask the question: *What is the State Game Commission; what does it do and what is its program?*

It is a good question and like all good questions, it deserves a sensible answer. Here then, in simple and brief form, is a short resume of your important game agency, its history, and present work and program.

What it is

Your *Game Commission*, better known officially as *Commission of Game and Inland Fisheries*, is a self-supporting separate agency of the state government that looks after the game and inland fish (wildlife) of the Commonwealth.

By self-supporting we mean that it is supported *entirely* by funds from hunting and fishing license fees, plus 15 percent of the dog license revenue and some federal-aid money known as Pittman-Robertson (P-R) funds and Dingell-Johnson (D-J) funds. No regular tax money goes to the support of the state's fish and game.

At present, ten members make up the appointed body of the Commission, one member from each of the Con-

gressional Districts. Each member is appointed by the Governor for a term of one to six years, the term of not more than two members to expire during the same year, subject to confirmation by the General Assembly. Each member serves without pay but meeting expenses are reimbursed. The Commission elects one of its members as chairman and appoints a non-member of the Commission as executive director. The executive director is the principal administrative officer of the Commission and carries out all orders, rules and regulations of the Commission.

The Commission meets regularly for the transaction of needed business. It sets up broad policies and plans on long range objectives. For its administrative requirements it has a staff organization made up of technical and non-technical personnel, the main working group that carries out the wishes of the Commission.

Present organization

At present, the administrative work load is handled by the executive director, an assistant executive director and five divisions: game division, fish division, law enforcement division, education division, and fiscal division. The work of the divisions will be explained later, but for the

moment they can be simply viewed as the five administrative arms of the Commission.

Early history

The present Commission came into being in 1916 after a long and hard struggle. It wasn't called a Commission then, but a Department, and it was set up under a commissioner in the old Commission of Fisheries. The late M. D. "Mac" Hart was appointed secretary and it is to him that much of the credit must go for seeing the game department through. He has since become known as the father of the Game Commission. Mr. Hart's untiring efforts toward game conservation continued down through the years until his death in 1950.

The divorce of the Department of Game and Inland Fisheries from the Commission of Fisheries came after much stormy debate in the Legislature of early 1926. Three bills were proposed for the purpose of providing a new plan for the administration of the affairs of the Department of Game and Inland Fisheries, each favoring a commission method. The new bill was passed and approved by the Governor on March 24, 1926, a short time just before adjournment and became effective July 1.

The new law continued the Department of Game and Inland Fisheries except that such a department would be in the hands of a body, hereafter called the Commission.

The first group of Commission members appointed under Governor Byrd to administer the affairs of the Commission of Game and Inland Fisheries were Major A. Willis Robertson, Chairman, Lexington; Samuel P. Goodloe, Afton; Beverley W. Stras, Jr., Tazewell; William S. Snow, Alexandria; and Allan Epes, Blackstone. The first meeting of this new Commission was held in Richmond on July 30-31, at which time, it was formally organized.

The New Commission of Game and Inland Fisheries, with Major A. Willis Robertson as its first chairman, continued to make excellent progress in both administration and game management. It was during Major Robertson's efficient chairmanship that the public became fully aware of the significance of game and fish operations as a state activity and during which time much good will, confidence, and quickened interest was developed on the part of the public. Work at the game farm, as well as work on the troublesome question of stream pollution, also moved ahead.

Later history

The period 1930-40 showed a steady increase in the various activities of the Game Commission. There was a most gratifying increase in the supply of wild turkeys and ruffed grouse, the increase being attributed to freedom from disease, regulated shooting and protection from forest fires. Operations at the game farm continued, with roughly some 3,000 quail being raised each year, and almost 600 turkeys. The first beaver were liberated on the Big Levels Game Refuge in Augusta County, the beaver having been exterminated in Virginia for many years. This marked the beginning of a program to return the beaver to its former habitat in Virginia. During this

period, extensive surveys were made on stream pollution within the state and certain recommendations were made for its abatement and control. The Commission adopted a policy of planting regular-sized trout in the mountain streams of the state, as trout of this size were found to be able to take care of themselves and resulted in far better fishing than from the planting of smaller-sized fish. Due to the early depression, receipts from the sale of hunting, fishing and trapping licenses showed a marked decrease. The Commission effected economies, reduced salaries and curtailed some of its activities to meet the decrease in revenue and thus operate within its income. It was during this period that three modern hatcheries were constructed for the propagation of game fish, namely the Front Royal Hatchery, the Stevensville Hatchery, and the Marion Fish Hatchery.

The Legislature of 1942 reorganized the administrative structure of the Commission, effective as of July 1, 1942, the old Commission going out of office and nine Commissioners being appointed, one from each Congressional District. The Commission, under the reorganization act of 1942, was empowered to choose its own executive di-



Almost all of the activities of the game division are aimed at improving food and cover and living quarters for all forms of forest and farm wildlife and waterfowl.



The fish division of the Commission is responsible for rearing, stocking, and investigational work. In recent years a program for securing more public fishing waters has been under way.



Fish, game, and dog laws are enforced by the state's county game wardens and by special conservation officers of the division of law enforcement.

rector, who was to assume administrative duties for the Commission.

On July 1, 1948, the Commission adopted for the first time a real coordinated long-range wildlife restoration program designed to greatly strengthen the law enforcement division of the Commission and to expand its game and fish propagation activities and its educational work. This program, actually evolved through the 33 years of growth and development, has proved to be one of the most encouraging programs of its kind in the country. Only recently, Virginia's wildlife restoration work was rated among the five best in the United States, a set-up of which Virginia citizens can be justly and rightly proud.

What the Commission does?

The Commission of Game and Inland Fisheries, under the laws of the Commonwealth, is given the responsibility for the protection and perpetuation of the wildlife and inland fish resources of the state, and is expected to so manage these resources that they will benefit the widest number of people for the longest time, without danger to the supply. The Commission has five administrative divisions with which it carries out Commission policy and objectives. These activities are now covered in more detail.

Game Restoration

Wildlife, in order to survive and multiply, must have adequate food, cover and protection 365 days a year. The Commission's program for farm game, forest game, and marsh wildlife is geared in this direction. Experience has shown that wildlife cannot be hand-reared and made to multiply. Only by providing suitable living space and a favorable home can wildlife be safeguarded and made to increase. Though the Commission does raise a limited amount of quail and wild turkeys, these are used primarily as brood stock in areas which lack sufficient birds. Almost all of the activities of the game division are aimed at improving food and cover and living quarters for farm game (quail, squirrels, rabbits, etc.) and forest game (deer, bear, turkey, etc.) and gathering information on proper harvesting so that the annual take will not en-



The education division publishes the monthly education magazine *Virginia Wildlife* and provides many forms of information and educational services to the people.

danger the supply. Under the Pittman-Robertson (federal aid) program direct cooperation is rendered land-owners in the promotion of habitat improvement work on farms and forests; also considerable effort is being made to improve the national forest lands of the state for game through the work of the Commission and the U. S. Forest Service.

Fish restocking and management

The fish division of the Commission is responsible for the operation of the five separate fish hatcheries in the state and the stocking of some 200 tons of large trout in the state's 132 trout streams open to public fishing. It also raises and stocks about an equal amount of largemouth bass, crappie and sunfish in the warmer public waters of the state. In recent years a program of building public fish ponds was begun in areas lacking sufficient and suitable public fishing waters. More than a half-dozen such public ponds of 175 acres and over have now been constructed, and more are under way.

Through the Dingell-Johnson (D-J) program a trained fisheries biologist is charged with the handling of investigative work on major impoundments and other public fishing waters. This fact-finding information is used by the Commission in the promotion of better fisheries management.

Law enforcement

Fish and game laws are enforced by the state's county game wardens and by special conservation officers in the division of law enforcement. County game wardens are also charged with dog law enforcement, and annually dispose of more than 30,000 unclaimed, wild and loose-running dogs.

The division has set up an air patrol for tidewater Virginia, and has tightened coastal boat and air liaison in law enforcement.

Each year more than \$150,000 is contributed to the state Literary Fund through game and fish law enforcement fines.

Besides enforcing the state's game and inland fish laws,

(Continued on page 12)



"The bird came out of the thicket fast and cut over toward Woody."

Hunting "Mountain Pheasants"

By E. V. RICHARDS
District Game Biologist

HERE was a chill in the air I hadn't figured on that morning. However, as I tramped on up the side of Chestnut Ridge I soon warmed up. I looked over to where Woody was and could see him picking his way up the ridge. We were watching "Lady", my Springer Spaniel, about the same instant the grouse exploded from the patch of mountain laurel between us. The bird came out of the thicket fast and cut over toward Woody. He saw the bird and shot quickly. I could see he had missed as the bird sailed high and was lost on the mountainside some place above us.

My hunting buddy, Woody Payne, loves his grouse hunting like I do. Woody, who doubles as a gunsmith in the winter and builds houses in the summer months, called over to me, "Bring the dog and let's jump that bird again."

As I made my way through the mountain laurel trying to avoid the greenbriers, I thought back to the night before when I called Woody and suggested we hunt Chestnut Ridge for ruffed grouse. "Sure, Lem," he said, "bring your dog and I'll meet you at Rawley Springs about 8:30."

We were hunting in the western side of Rockingham County on the George Washington National Forest and

were after grouse or the so-called mountain pheasant.

Considered by many as the most difficult upland game bird to hunt, the grouse is a wonderful bird. I had never killed a ruffed grouse until four years before. However, I am now a confirmed grouse addict. Hunting quail or ring-necked pheasant seems a bit tame to me now after a taste of grouse hunting. Try to hit a grouse as it explodes from your feet, twisting and turning its way through brush and trees, and you'll know it's no easy target. It usually is out of gunshot range before you have time to get over the initial "shock" of the flush.

To hunt grouse successfully, one should know something about the habits of the bird. Ruffed grouse, called by scientists, *Bonasa umbellus*, belongs to the group of birds called the *Galliformes*, which includes the ptarmigan, pheasants, quail, and turkeys.

The bird itself is about the size of a bantam hen. Its plumage is a symphony of grays, reddish-browns and blacks. At first glance, one notices the glossy black "ruff" of neck feathers which protrude from the body when the bird is alarmed. The square-shaped tail, reddish-brown with a black terminal band, marks the bird in such a way that it is distinct from all other game birds in Virginia. An average grouse in Virginia will

weigh about 18 ounces.

Grouse are native to our wooded mountains. Found in most mountainous areas, it inhabits brushy mountain hillsides, thickets of laurel and briars and old fields dotted with patches of hemlock, pine or spruce. To locate grouse, one must find good grouse cover. Find it and you have good grouse shooting.

The most peculiar characteristic of the grouse is its drumming habit. This sound, made by the male grouse beating the air with his wings while on his favorite drumming log, represents a call of the male to the female. Once a person hears a grouse drumming, the sound is never forgotten.

The female grouse constructs her nest at the base of a tree or stump, usually near an old field, logging road or trail. Ten to fourteen buff-colored eggs are laid as a rule and incubated from 21 to 24 days. The young grouse are hatched "on the run" and can fly almost immediately.

Woody and I had chosen to hunt Chestnut Ridge, a hillside covered with second growth hardwoods, scattered with pines and a thick undergrowth of mountain laurel.

As we continued up the ridge, Woody called over, "There's a grouse up ahead in that patch of laurel." My Springer Spaniel was working slowly through the laurel and she ranged out a bit too far and I had to call her in. Woody and I passed glances back and forth expectantly, guns held ready for the flush. With a dog such as a Springer, there is no steady point, only the flush of the bird. Spaniels are favored for grouse hunting because they work slowly and stay close to the hunter. Though excellent retrievers, they do not hold a point.

A burst of wings beating against the brush made my head turn suddenly to the left. The grouse flushed in a swirl of leaves ten feet in front of the dog and was already above the height of the laurel thicket as I instinctively raised my double-barrel. I fired as the grouse started for an opening in the white pines thirty yards ahead. The bird folded as the number 6's did their work. I called to the dog, but found that she was already picking up the still fluttering bird to "fetch" it to me. Pattering the dog, I began to collect my thoughts as Woody came through the brush to see the bird.

"Nice shot," he said, as he glanced at the grouse. "Beautiful birds, aren't they? That's a cock bird, isn't it?"

We looked at the bird and found the distinct "ruff" of feathers along the neck, that reveals its name. By examining the tail, I pointed out the black band across the bottom of the tail was continuous which indicates a male bird. In the female grouse this black band is mottled with gray, giving it a broken appearance.

"Let's see what they're feeding on," I remarked, and took my hunting knife and slit open the crop. Apparently the bird was feeding as we jumped it for the crop contained three scrub oak acorns, several pieces of laurel leaves, a few small weed seeds and five greenbrier berries.

"Well, let's get up some more," Woody said, and turned

and made his way over a huge dead chestnut log. I stuffed the grouse into my game pocket and resumed my way up the ridge. We were nearly on top of Chestnut Ridge and in a short while we came out in some old fields that once pastured cattle. Around the edges were clumps of bushy white pine, with lower branches touching the ground. As we hunted up the ridge, Woody and I called back and forth to each other, keeping an eye on the dog who criss-crossed in front of us, investigating every likely covert. Back and forth we hunted through excellent grouse country. Thirty minutes of this and Woody called: "Where they at?" I myself began to wonder.

I began to warm up from the walking and paused to open my jacket. "Boom," went Woody's gun in a small scattering of hardwoods to my right. "Did you get it?" I called.

"Yeah," Woody answered as he came out toward me carrying a fat gray squirrel.

"That's some grouse," I said jokingly. We stopped on the edge of the clearing and sat down on a stump to have a cigarette. We needed a break.

From where we sat, a gorgeous view unfurled itself before us, which made the climb up the mountain worthwhile. The day was crisp and clear and we drank in the view for a silent minute. It was Woody who broke the spell. He ground his cigarette in the dirt carefully with his heel and then got up ready for more grouse hunting.

We walked about another mile atop Chestnut Ridge when the action began. My Springer Spaniel was heading straight to a dense thicket of low-growing pine when a grouse thundered into the air. It was Woody's shot, and as he dropped the bird in nice style grouse began to appear everywhere! At least five others flushed from the shelter of some low-growing pines, each appearing to take off in a different direction. One bird came at me fast and was over my head before I could raise my gun. I let him go and swung on another blurr of feathers winging away about 40 m.p.h. I lined him up good and squeezed off the left barrel. Not a feather flew. I muttered to myself and watched the bird disappear in the timber.

In the meantime, Woody shot again and I saw him picking up his first grouse. Soon he came over to a lone pine and stooped over to pick up his second bird. All smiles, he asked me the stock question. "Get your bird?" I laughed and told him my grouse was sitting on the end of my gun barrel, and as I pulled the trigger he moved. "I know what you mean!" he said.

The two national forests in Virginia contain most of the ruffed grouse habitat in the state. Under the cooperative wildlife program, started in 1938, the Comission of Game & Inland Fisheries and the U. S. Forest Service have been carrying on a long-range program of improving grouse habitat, as well as habitat for other wildlife species on national forest land. By creating new woodland clearings and maintaining old fields, by widespread plantings of pine trees and many varieties of wildlife food shrubs and trees, the range and numbers of grouse have been increased, a situation which continues to make many grouse hunters happy.



Fish & Wildlife Service photo by Peter J. Van Huizen

The preservation of migratory waterfowl is a joint responsibility of the governments of Canada, the United States, and Mexico.

Status of AMERICAN WATERFOWL— with emphasis on the Atlantic Flyway

By C. E. ADDY
Atlantic Flyway Representative, U. S. Fish and Wildlife Service

DUCKS and geese breed in Canada and the northern United States and migrate long distances to wintering grounds in the United States and Mexico. They do not belong solely to the people in any particular locality, state or nation because the home of American waterfowl encompasses the whole North American Continent and the movements of the birds have no relationship to political boundaries. Therefore, the responsibility for the preservation of migratory game birds must be that of the people of Canada, the United States and Mexico through their respective federal governments. As a step towards more effective action and understanding, treaties setting forth broad principals and management regulations to safeguard the resource were signed between the United States, Canada and Mexico.

It became obvious to conservationists many years ago that drastic action was necessary if American waterfowl were to maintain their place in the America of the future. In spite of a series of restrictions on the "take" ranging from the abolition of spring shooting, various reductions in seasons and bag limits, limitations on how birds may be taken, to the outlawing of baiting and live decoys, the continental waterfowl population reached an all-time low in the early thirties. It is apparent to us today and was realized by leading conservationists in the past that

this historic decline in the duck and goose population was not due solely to shooting, but rather to a combination of shooting, loss of breeding habitat, and a series of very poor breeding seasons. It was obvious that our waterfowl could not withstand a combination of unlimited harvest, large-scale loss of habitat and a series of drought years with little production of young. In an effort to stop the downward trend, restrictions were not only put on hunting but action was taken both in the United States and Canada by government and private organizations to correct the habitat deficiencies.

Shooting, of course, is not the only factor involved in the reduction of duck populations. There are many natural destructive forces, such as disease, predators and weather, to name but a few, which take their toll. Some of these are severe at only a certain limited period during the year while others may operate rather subtly during much of the life of the birds. Man has little control over these decimating factors. The most direct method employed for maintaining adequate breeding stocks has been through regulation of shooting or harvest. If production is not good or the population drops to a low level, the kill should be held within certain limits in order to permit an adequate number of ducks and geese to return to the breeding grounds. If our capital stock at the end of the hunting season does not contain enough

Talk given before the Virginia State Convention, Izaak Walton League of America, October 2, 1954.

birds to populate the breeding grounds we cannot get the maximum yield possible.

It is realized, of course, that populations of ducks and geese can and do experience radical fluctuations from year to year and over long-term periods. It is generally recognized also that waterfowl have a high reproductive potential and that if breeding conditions are good the birds can recover from a low population in a relatively short time. It is likely, too, that waterfowl populations would exhibit irregular fluctuations in numbers from year to year even if there were no shooting.

Since waterfowl do produce surpluses from year to year, it is good management to allow the hunter to harvest as much of this surplus as is reasonably safe and wherever possible to supplant by harvest through shooting, losses which would occur normally by other means.

At first waterfowl management concerned the country as a whole and dealt with the continental population as a unit. Later, through migration studies, it was found that in the United States the population might be managed in several broad units which would be more or less distinct. This evolved into the four present flyway management units. With the national waterfowl management program broken down into flyway units, more exacting biological data on a current basis was needed if an effective job was to be done. This has led to rather extensive annual surveys of the breeding grounds, wintering grounds and hunter kill. Thus, those responsible for the setting of regulations in August each year have the benefit of detailed data on the size of the previous winter population in Canada, United States, Mexico, Central America and the West Indies.

The Atlantic Flyway draws its birds from a very broad area including the northeastern states, eastern, central and northwestern Canada and probably even from parts of Alaska. Of course much of this same area also sends birds to the other flyways. A considerable portion of the breeding range for most species is covered by aerial survey crews each summer. The principal species not surveyed during the summer are brant, Richardson's goose, blue and snow geese, and swan which nest on Baffin Island, Greenland and various Arctic islands.

Aerial equipment varies from light planes to the Gruman widgeon and Gruman goose. On the breeding grounds the intensity of the surveys varies from one part of the range to another, depending somewhat on the number of waterfowl present. Coverage in the prairie states and provinces, where 30 or more ducks per square mile are encountered, is much more intensive than in the eastern Canadian provinces where a density of only 1-5 ducks per square mile occurs. In some areas, particularly the prairies, observations by ground crews supplement the aerial.

The wintering grounds of the Flyway extend from Newfoundland to South America with the principal concentrations of birds located in coastal areas of the Middle Atlantic States and Florida. As in the breeding ground surveys, winter surveys represent a cooperative effort between federal, state and private organizations. The bulk



Fish & Wildlife Service photo by Rex Schmidt

The Canada goose population is down slightly but about as good as a five-year average.

of the winter surveys are made by aerial crews, supplemented in some instances by ground observers, and take place at a time when waterfowl are concentrated and more or less sedentary. Counts at this time give information not only on species surveyed on the breeding ground but also on other species which breed far to the north. The winter survey gives the status of the population at the end of the fall migration period and after the hunting season is over. In other words, it represents roughly the stocks on hand for the coming breeding season. Also, the winter survey is of value in indicating long-term population trends.

Generally speaking, in spite of a three-fold increase in hunters, the status of American waterfowl today is good, much better than during the early thirties. This is the

result of a controlled harvest through restrictions on shooting, improved water conditions on the breeding grounds, and an increased production on the nesting grounds.

It is interesting to note that there appear to be major differences from one part of the breeding range to the other as far as weather and water conditions are concerned. In the prairie states and prairie provinces, where the heaviest concentrations of nesting waterfowl occur, water levels are all-important.

Conditions are radically different to the north and east in the relatively sterile Precambrian Shield country where black ducks, greater scaup, and Canada geese nest. Droughts in this area which would seriously affect waterfowl do not occur, as far as I know. More than likely floods and precipitation coupled with low temperatures during the nesting and brooding periods would be the usual causes of loss in nests and young birds.

The story from the breeding grounds this past summer, however, is not as optimistic as a year ago, but populations are still in fair shape from the standpoint of average levels.

To sum up prospects this season, it is expected that the flights of marsh ducks and Canada geese will be below that of last year but about as good as the five-year average. The status of diving ducks is still uncertain, although late season reports indicate a good crop of broods. However, even by early September many of these would be very young birds. If the freeze-up proved early this year some of these young broods may not have survived. It is expected that when the major diving duck flights arrive they will be late and will be mostly juveniles.

COMMISSION (Continued from page 7)

the county game wardens and special conservation officers cooperate with the other divisions of the Commission in habitat improvement work for game, fish restocking, and public relations and educational work.

Education

The work of wildlife conservation education by the education division includes the monthly publication of the Commission's educational magazine *Virginia Wildlife*, the regular production of motion pictures pertaining to wildlife and fisheries, a weekly radio broadcast, and a monthly television show. A loan service covering more than 80 different conservation films is maintained for schools and clubs within the state, reaching a yearly film audience of close to 100,000 people.

Regular weekly news releases are also prepared for the press as is the issuance of a monthly educational bulletin. An annual statewide wildlife essay contest is promoted in the schools with close liaison with the Izaak Walton League of America and the State Department of Education. In recent years a special services conservation program has been initiated in the field, giving direct assistance to schools, nature camps, and clubs.

The division also answers hundreds of requests for speakers, programs, exhibits, and is responsible for the

production and distribution of numerous circulars, leaflets and bulletins dealing with the state's wildlife.

Fiscal work

As pointed out earlier the Commission is a self-supporting state agency, the revenue coming to it from the sale of hunting, fishing and trapping licenses, 15 percent of the income from dog licenses, federal aid appropriations (Pittman-Robertson fund and Dingell-Johnson fund), the sale of publications and other miscellaneous items. All monies thus received go into the special "game protection fund" and no public tax money is used.

The disbursements of the Commission are limited to the amount appropriated by the General Assembly from the "game protection fund" and in no event does the state pay obligations incurred by the Commission or liable in any manner therefore, except to the extent of the "game protection fund."

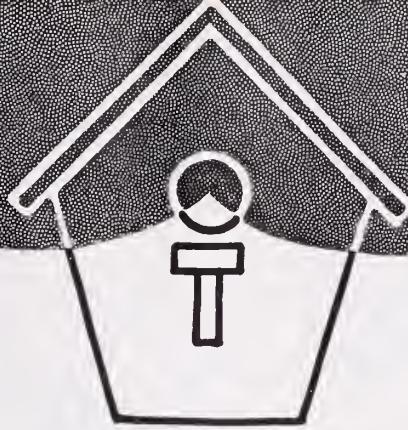


The careful accounting of all monies in the Commission and the setting up of the biennial budget is coordinated by the fiscal division.

The careful accounting of all monies in the entire Commission and the setting up of the biennial budget is done in close liaison with the fiscal division, other divisions, the executive director, and the entire Commission.

The following information shows how Commission monies are received and how they are spent.

July 1, 1953-June 30, 1954		
Disbursements		
Administration	\$ 38,513.54	2.18
Fiscal Division	36,272.86	2.05
Education Division	101,085.02	5.73
Law Enforcement Division	645,979.57	36.65
Game Division	401,123.23	22.75
Fish Division	244,857.48	13.89
Capital Outlay	294,880.57	16.72
	\$1,762,712.27	100.00
Receipts		
Hunting Licenses	\$ 835,823.25	
Fishing licenses	498,422.50	
Trapping licenses	5,435.50	
National forest stamps	65,325.00	
Dog licenses	116,771.06	
Federal aid	186,590.09	
Miscellaneous	26,249.39	
	\$1,734,616.79	

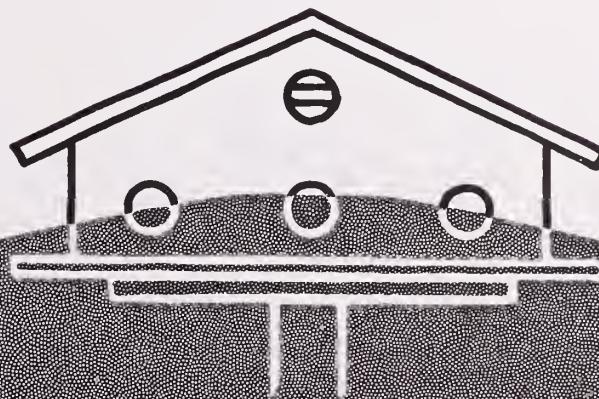


**NESTING BOXES
FEEDING STATIONS
BIRD HOUSES
WILDLIFE SHELTERS**

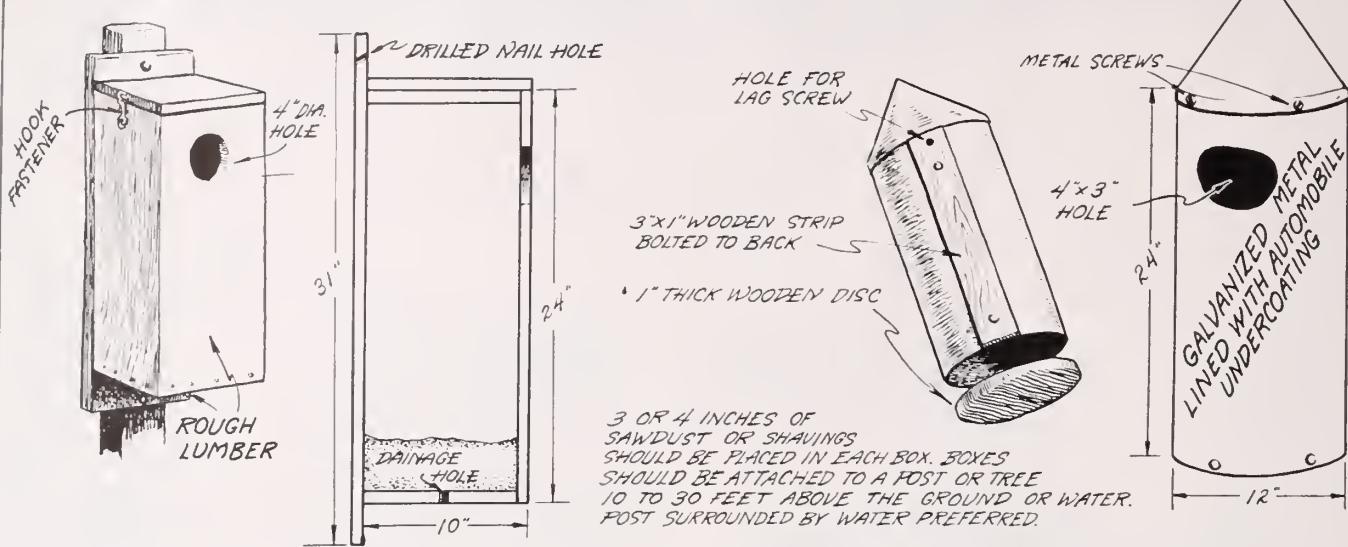
AND

HOW TO BUILD THEM

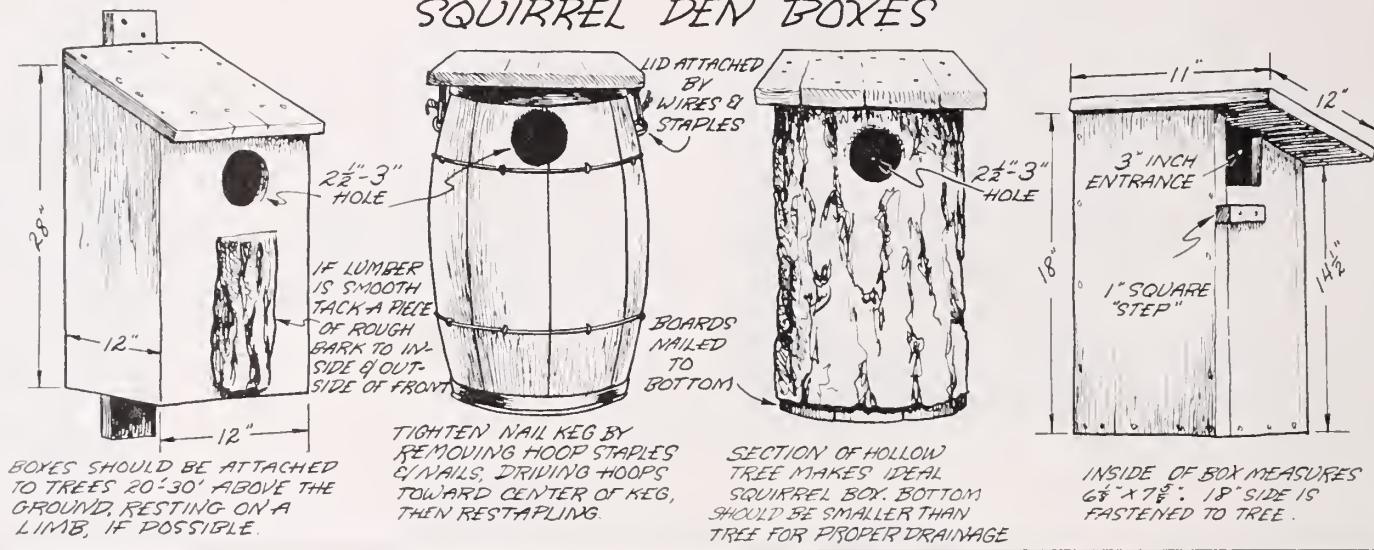
Winter months are ideal for "puttering around." Why not do something constructive for wildlife.



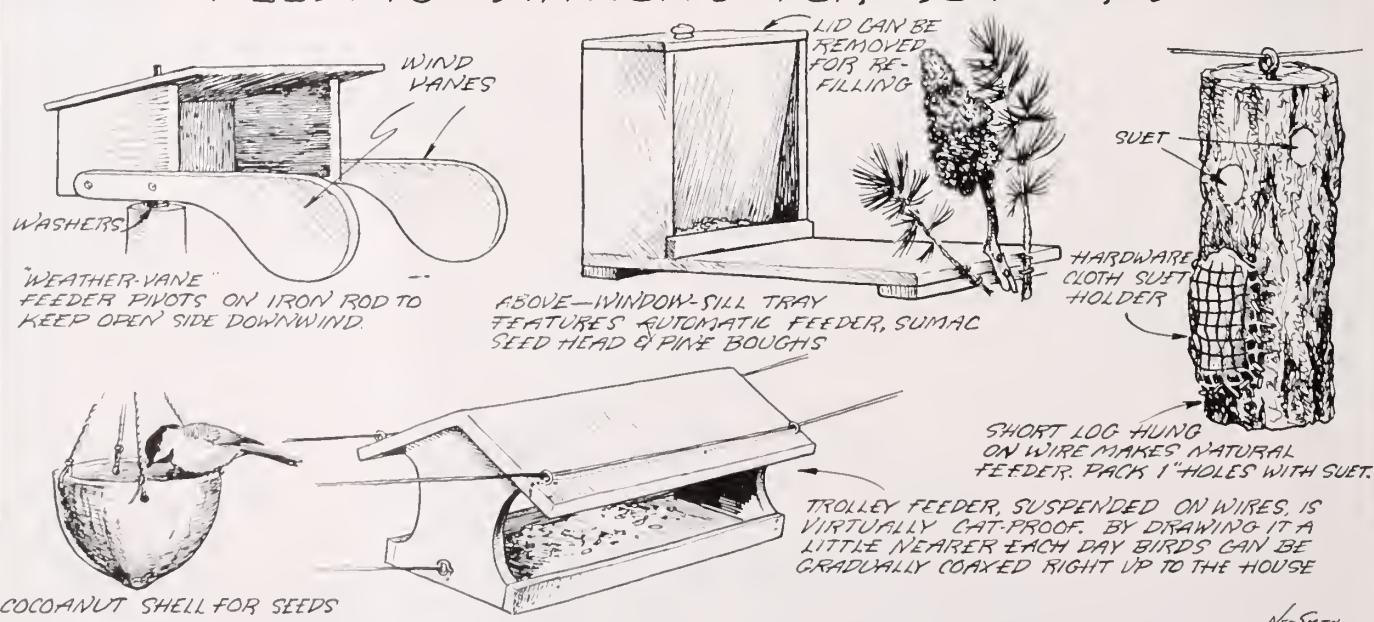
WOOD DUCK NESTING BOXES



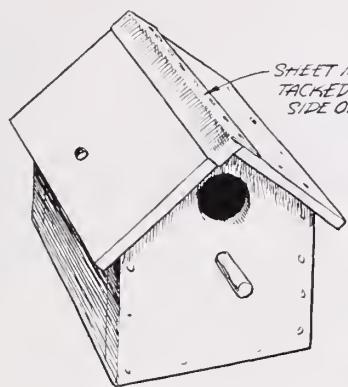
SQUIRREL DEN BOXES



FEEDING STATIONS FOR SONGBIRDS



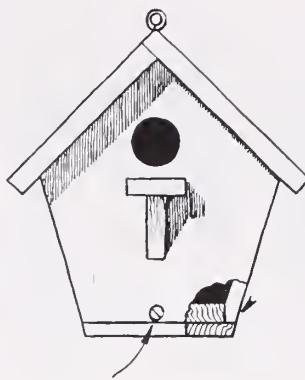
BIRD HOUSES



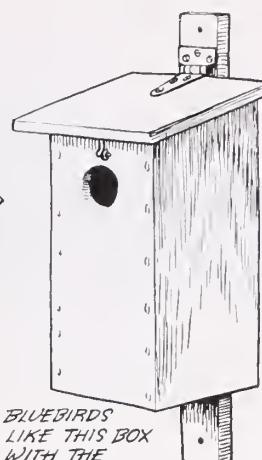
TO OPEN FOR CLEANING REMOVE SCREW AND SLIDE MOVEABLE HALF OF ROOF OUT FROM BEHIND METAL RIDGE.



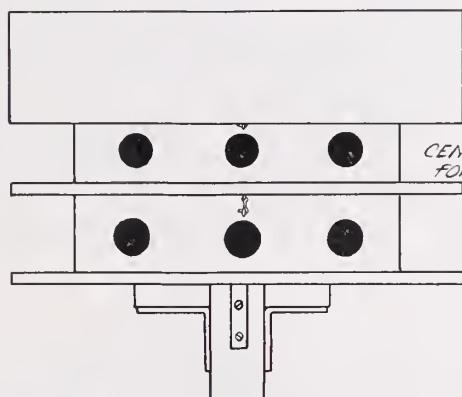
TIN CAN WREN HOUSES SHOULD BE PLACED IN A SHADY LOCATION TO PREVENT OVERHEATING.



2 SCREWS SECURE THE FLOOR OF THIS WREN HOUSE. ONLY BOXES INTENDED FOR WREN'S OR MARTINS SHOULD BE HUNG FROM LIMB; OTHERS TO BE FASTENED SECURELY TO A POST OR TREE TRUNK.



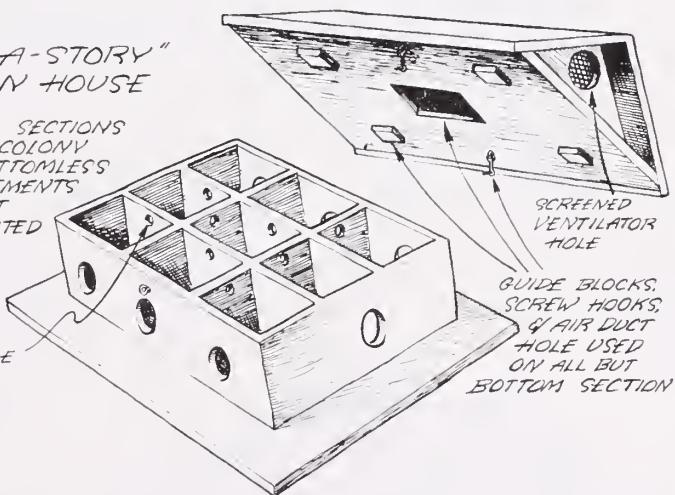
BLUEBIRDS LIKE THIS BOX WITH THE HINGED ROOF



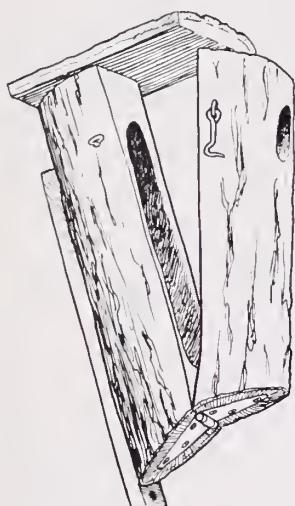
"ADD-A-STORY" MARTIN HOUSE

ADDITIONAL SECTIONS ADDED AS COLONY GROWS. BOTTOMLESS CENTER COMPARTMENTS FORM AIR DUCT TO VENTILATED "ATTIC".

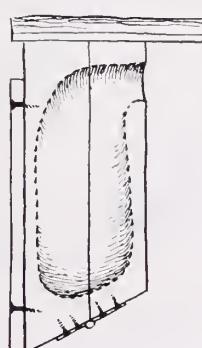
5/8" HOLE



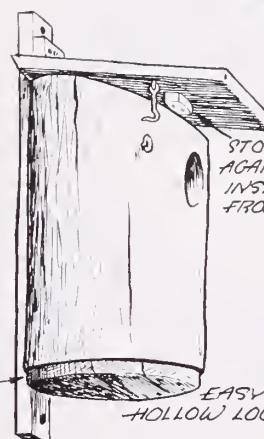
SCREENED VENTILATOR HOLE
GUIDE BLOCKS, SCREW HOOKS & AIR DUCT HOLE USED ON ALL BUT BOTTOM SECTION



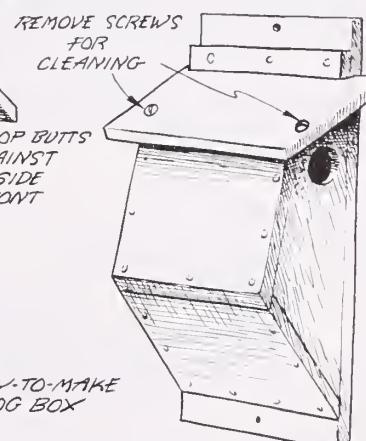
THIS RUSTIC HOUSE IS MADE BY SPLITTING A SECTION OF LOG, THEN CARVING OUT A NESTING CAVITY.



DON'T ALLOW BOTTOM TO EXTEND BEYOND SIDES OF LOG



EASY-TO-MAKE HOLLOW LOG BOX



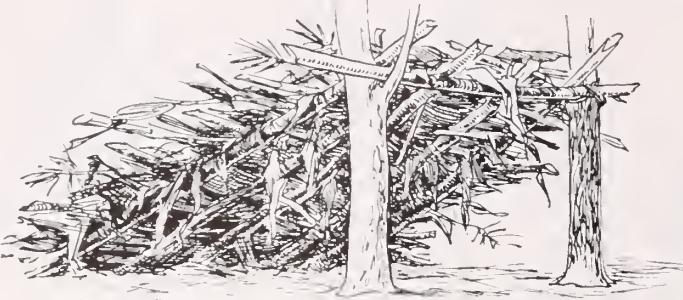
REMOVE SCREWS FOR CLEANING

STOP BUTTS AGAINST INSIDE FRONT

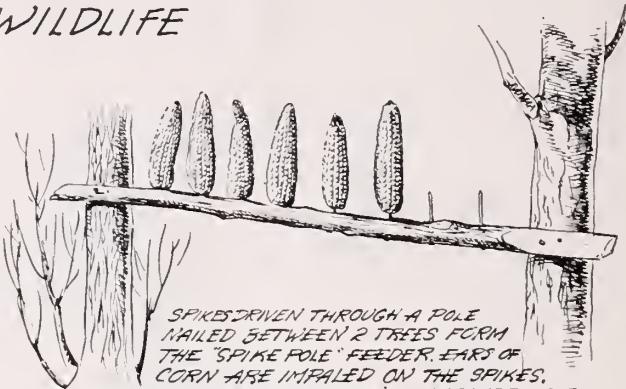
SPECIES	FLOOR OF CAVITY	DEPTH OF CAVITY	ENTRANCE ABOVE FLOOR	DIA. OF ENTRANCE
BLUEBIRD	5x5"	8"	6"	1 1/2"
CHICKADEE	4x4"	8-10"	6-8"	1 1/8"
TITMOUSE	4x4"	8-10"	6-8"	1 1/4"
NUTHATCHES	4x4"	8-10"	6-8"	1 1/4"
HOUSE WREN	4x4"	6-8"	1-6"	3/8"
CAROLINA WREN	4x4"	6-8"	1-6"	1 1/8"
CRESTED FLYCATCHER	6x6"	8-10"	6-8"	2"

SPECIES	FLOOR OF CAVITY	DEPTH OF CAVITY	ENTRANCE ABOVE FLOOR	DIA. OF ENTRANCE
FLICKER	7x7"	16-18"	14-16"	2 1/2"
RED-HEADED WOODPECKER	6x6"	12-15"	9-12"	2"
DOWNTY WOODPECKER	4x4"	8-10"	6-8"	1 1/4"
PURPLE MARTIN	6x6"	6"	1"	2 1/2"
TREE SWALLOW	5x5"	6"	1-5"	1 1/2"
BARN OWL	10x18"	15-18"	4"	6"
SPIRROW HAWK	8x8"	12-15"	9-12"	3"

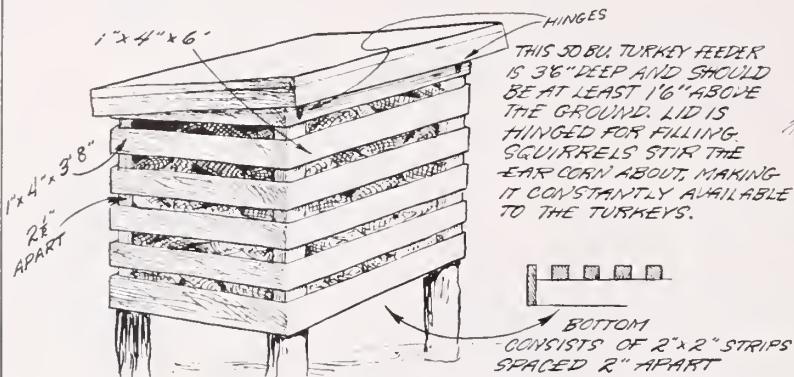
FOOD FOR WILDLIFE



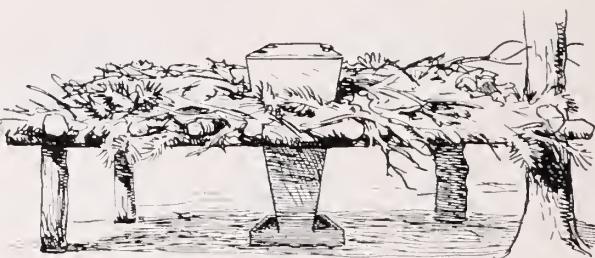
HERE'S THE "STANDARD" FEEDING SHELTER FOR GAME. WHEN BUILT ON UNFROZEN GROUND IT CAN BE SUPPORTED BY FORKED STAKES INSTEAD OF TREES. CAN BE COVERED WITH CORN STALKS, BARK, OR BRUSH & LEAVES.



SPIKES DRIVEN THROUGH A POLE NAILED BETWEEN 2 TREES FORM THE "SPIKE POLE" FEEDER. EARS OF CORN ARE IMPALED ON THE SPIKES. TO ADAPT FOR TURKEYS NAIL ANOTHER POLE TO THE OTHER SIDE OF THE TREES, 12" BELOW THE FIRST.



1" x 4" x 6"
1" x 4" x 3 1/2"
2" APART
HINGES
THIS 50 BU. TURKEY FEEDER IS 3'6" DEEP AND SHOULD BE AT LEAST 16" ABOVE THE GROUND. LID IS HINGED FOR FILLING. SQUIRRELS STIR THE EAR CORN ABOUT, MAKING IT CONSTANTLY AVAILABLE TO THE TURKEYS.
—
BOTTOM CONSISTS OF 2" x 2" STRIPS SPACED 2" APART

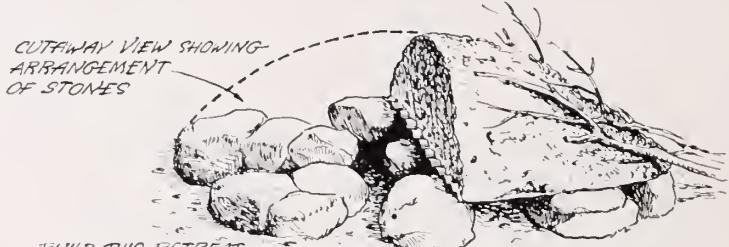


THIS HOPPER FEEDER FOR SMALL GAME IS DEER-PROOFED BY ERECTING AROUND IT A 12'-14' SQUARE ROOF. THE ROOF IS ONLY 2 FT. ABOVE THE GROUND, TOO LOW TO ADMIT DEER. 4 STURDY POLES SET ON POSTS SUPPORT THE CROSS POLES & COVERING.

COVER FOR WILDLIFE



BRUSHPILES MAKE FINE ESCAPE COVER AND ENCOURAGE DENNING OF CHUCKS & FURBEARERS. HEAP BRUSH OVER STUMPS, ROCKS, LOGS OR RAIL PILES TO KEEP IT FROM MATTING DOWN.



CUTAWAY VIEW SHOWING ARRANGEMENT OF STONES
BUILD THIS RETREAT FOR RABBITS & FURBEARERS BY LAVING ROCKS AS SHOWN, COVERS WITH FLAT ROCKS OR DISCARDED SHEET IRON TO FORM TUNNELS 6" HIGH. COVER WITH EARTH, STONES & BRUSH.



FELL CULL TREES, ALLOWING THE BUTTS TO REMAIN ATTACHED TO A HIGH STUMP. PLANT JAPANESE HONEYSUCKLE OR OTHER FOOD OR COVER PRODUCING VINES OR SHRUBS. GUILF WILL LOVE YOU FOR THIS!



WHERE NATURAL BURROWS ARE SCARCE ARTIFICIAL ONES CAN BE MADE BY BURYING OLD DRAIN TILES OR PIPES. HEAP PLENTY OF ROCKS & GROUND ON THE TILES LEAVING ENDS OPEN. ZIG-ZAG DESIGN FOOLS THE "SPORTSMAN" WITH A STICK.



COVER FOR GROUSE AND OTHER SMALL GAME CAN BE ESTABLISHED BY FELLING UNWANTED TREES THAT ARE SUPPORTING WILD GRAPE VINES. IF CUT DURING THE SUMMER THE LEAVES WILL PROVIDE ADDITIONAL COVER.



NED SMITH

Suggestions for the Teaching of Conservation

By J. J. SHOMON

MAN today is making serious inroads upon life's sustaining natural resources—soil, water, plant life, animals, and minerals. The human population is rising, our wants are increasing and science is changing the balance of nature, and wars and war tension add further strain to our basic wealth. All this adds up to one thing. Our future is at stake. Either we safeguard our remaining natural wealth or face a lower standard of living with danger to our human welfare and freedom. Only public opinion created through education can swing the country toward conservation consciousness.

Teacher the Key

In a democratic country like ours, nothing can do more to stem the tide of natural resources destruction than education. Education is key. It is the springboard from which a new conservation philosophy must rise, and it is in that philosophy that we must put our stake if we are to prosper and remain free.

The teacher holds our American future firmly in hand. Only by raising generation after generation of conservation-minded citizens will our nation be assured of greatness.

What to Teach

Perhaps the first thing the teacher should get across is the *true* meaning of conservation. No longer is hoarding to be connected with conservation. Rather the idea of using wisely is being stressed. A good, modern definition, simply given, might be stated as follows: *Conservation is a way of life whereby all of our natural resources are used for the best interests of man for all time.* In short, wise use without waste.

Basic Concepts

To get the idea of conservation across, the teacher should stress basic concepts of wise resource use. They are:

- *All natural resources are related.* We can no more do without one resource than we can another. So stress the essential unity of all resources. Nature is one. Injury to one resource spreads rapidly to another.
- *Soil and water are basic.* Nothing can live without soil and water. Man, plants and animals would perish without soil and water. History shows that where a nation has failed to keep up its soil and water resources, it failed to survive.
- *Animals depend on plants.* All animals depend upon plants and other animals for life, including man. Plants can live without animals but not animals without plants.
- *Man must know and respect nature,* including all living things. Children should be taught a tender regard for all things living.

- *Science can help nature but it cannot replace it.* In other words, man can only assist nature, not substitute for it.
- *Conservation applies to all* and all people must learn to practice it.
- *Natural resources form two groups,* (1) renewable resources as soil, water, animals, forests and other plants, and (2) nonrenewable resources such as the minerals. Each has different grades of use and re-use.

Stress Man's Relationships

Besides stressing the basic concepts already given, teachers should teach and stress the idea of man's relationship to his environment, e.g. how are *we* in our community affected by the soil, the woods, the waters, the wildlife? How is the school affected by the environment around it.

Idea of Community Effect

Only by making conservation a living, practicing thing will it succeed. Teachers should stress the idea of community effort in conservation. Discuss ways and means by which the local community, including the school, can help in the conservation effort. Remember, conservation must come to the land, to the home, to the church, town, and city as well.

Wise Resource Use

In teaching conservation it is well to get the *basics* under way first. When the pupil learns the importance of basic concepts as outlined, the next step should be a study of the basic resources themselves—soil, waters, plants and animals, and minerals. Here are some suggestions on the present status of each.

Soils

In the United States wind and water erosion and bad land practices are resulting in the loss of 500,000 acres of cropland each year costing the staggering sum of \$3,844,000,000.

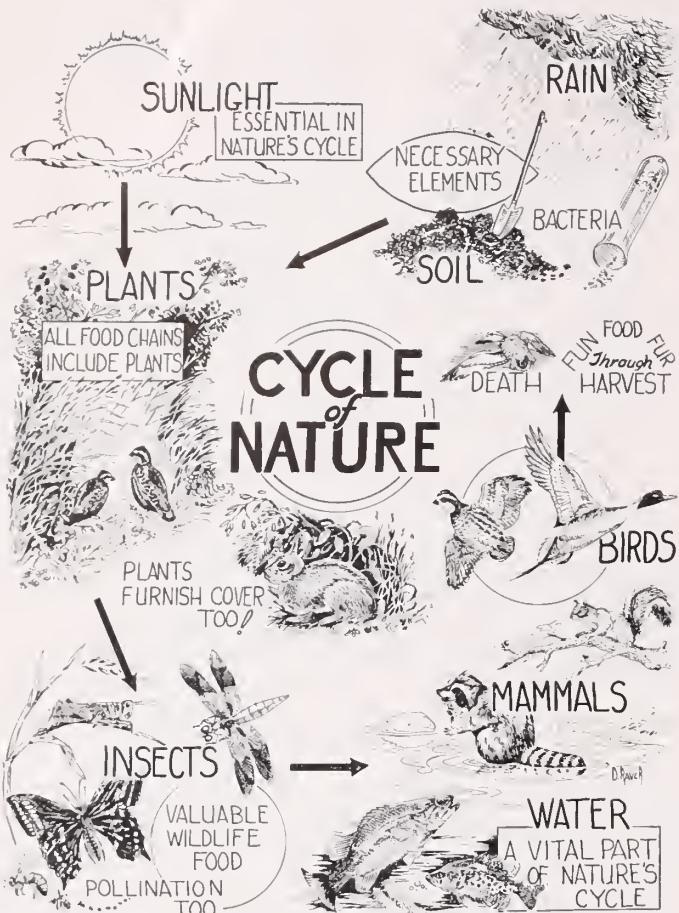
Our once 9 inches of top soil has disappeared from much of its original place leaving us "6 inches from starvation."

According to Dr. Hugh Bennett, former chief of the U. S. Soil Conservation Service, we have as Americans ruined more good land in less time than any other nation in recorded history. In the space of three centuries we have wasted, worn out, and discarded 100,000,000 once-fertile acres—most of it in the past 50 years.

Today there remain only about 460 million acres of first-class cropland, enough to meet our needs provided we take care of it from now on.

Water

Few problems are more acute today than those of



All forms of life, both plant and animal, are governed by the cycle of nature.

water. Our water needs are 15 times what they were 15 years ago. Droughts, flood frequency and flood peaks, the critical lowering of water tables, stream pollution and siltation are causing great concern to our state and country. No longer is the problem a local one.

Water is a renewable resource, yet it has been used so recklessly that now we are paying a great price for its misuse. Only by a great water conservation crusade based upon sound laws and wise repeated use will our future water needs be met. Increased production, greater all-round water use, and an ever expanding population will demand the strictest kind of water economy in the future.

Like soil, life is not possible without water. Man cannot live where it is not available.

Forests

Our forests were once our greatest resource. Today we have less than one-fourth of original saw timber left. We are still cutting trees faster than they are being grown and those that remain are not being properly harvested. "Only 8 percent of the cutting measures up to good standards . . . and desirable cutting practices and fire prevention are to be had on only about 1 percent of our privately owned forests."

Better forest management is needed on farm and forest woodlands, and many millions of acres must be reforested if our future requirements are to be met. More and better fire protection is also needed on both private and public forest lands.

Wildlife

Even though we have long passed the pioneer hunting and fishing stage in America, wildlife still holds a fascinating appeal to millions of our citizens. The revenue from hunting and fishing licenses is very great indeed and makes up a sizable item in our economy.

Today we realize that our supply of game and fish cannot be maintained by hatching and stocking. Far more important is adequate food and shelter and freedom from poaching. To have wildlife in a state like Virginia, which has over 500,000 hunters, we must learn to take only the reasonable harvest and no more. We must have more natural areas for wildlife and provide more and more cover and feeding grounds. Above all, needless, illegal, unscrupulous killing must be avoided. More and more of our outdoor fun must come from pursuits other than killing.

Other Resources

What has been said of game can also be said for our fisheries. Overfishing and overharvesting of our marine fishes and shellfish must be avoided in the future if we are to have such things as bluefish, croakers, crabs, oysters, shrimps, and clams. Siltation and sewage and industrial wastes must be cut down.

In the mineral field, a generous supply of basic minerals in addition to those found in the soil is vital to our balanced economy.

Our coal reserves in the United States are estimated at 3,000 billion tons, enough to last 400 years, and with wise use enough to last 2,000 years. Oil is down to 21½ billion barrels, enough for 15 years, while the precious metals, zinc, copper and others, may last an equal period. Only the careful use of these reserves can lengthen their output.

How to Teach Conservation

There are many, many ways that the conservation theme can be worked into the classroom. Here are some recommended channels:

1. *Work conservation ideas into the subject matter.* Subjects such as general science, social science, geography, history can all be taught with a conservation emphasis. Even spelling, mathematics, and art lend themselves well to conservation study.
2. *Take in show-me-trips and field trips.* Group visits can be made to parks, forest preserves, refuges, fish hatcheries, research laboratories, museums, botanical areas, tree farms, conservation field days, etc.
3. *Classroom discussions.* A weekly or semi-weekly discussion hour can be planned in the classroom with different pupils alternating as discussion leader. Pick a different conservation subject each week.
4. *Visiting speakers.* Though speakers usually prefer to talk to general assembly groups, many are glad to address single classrooms. Teachers should arrange for speakers well in advance. A list of governmental agencies and private organizations, many of whom provide speakers, is included in the final pages of this publication.

5. *Motion picture films.* This is an excellent and powerful medium of instruction. Conservation films are available from many sources.
6. *Conservation essay contest.* Though easy contests are numerous and persistent, the annual state-wide essay contest sponsored by the Virginia Game Commission and the Izaak Walton League of America is most worthwhile. Every teacher who has any grade from 5 through 12 would do well to look into this valuable conservation project. Over \$1000 in prizes are awarded each year and a \$400 scholarship is awarded the 12th grade winner. Information can be obtained from the Virginia Game Commission, Richmond 13, Virginia.
7. *Vocational agriculture.* Here instructors find a fertile field for conservation learning. Among the many useful conservation projects that pupils might enter are the county wildlife food and cover contests.
8. *Library corners.* Schools without established libraries can profit well by setting up small library corners containing useful books and other publications on conservation.
9. *School conservation clubs.* A good interest-getter in any school can be an active conservation or wildlife club. Visiting speakers can be arranged for, films seen, and much valuable work in conservation can be promoted in a youth club.

Where to get help

Teachers and conservation leaders can get ample assistance in resource use training by simply calling upon the help of government and private organizations in securing source material, speakers, motion picture films,

exhibits, and such. In order that the teacher may know whom to contact or where to write, a list of governmental and non-governmental agencies at the state and national levels is given here. A little advance planning on a school program, assembly, field trip, essay or wildlife planting contest, or any other of the many proven and good conservation projects will do much to insure its success. Help is always available if asked for. Material is available, but it must be collected and made available. Speakers are always eager to please school groups, if only given sufficient time and notice.

Here is your valuable contact list: take advantage of it:

Commonwealth of Virginia (State Government Agencies)

COMMISSION OF GAME AND INLAND FISHERIES, RICHMOND 13, VIRGINIA.

Looks after the welfare of the wildlife resources of the state; promotes a wide program of game and fish restoration and law enforcement. Operates a game farm at Cumberland and five fish hatcheries, all open to public inspection. Does considerable conservation education work by providing speakers, films, exhibits, literature, camp assistance, etc. Publishes monthly magazine *Virginia Wildlife* devoted to the wise use of all wildlife and other related natural resources.

COMMISSION OF FISHERIES, NEWPORT NEWS, VIRGINIA, AND COMMISSION OF FISHERIES LABORATORY, GLOUCESTER POINT, VIRGINIA.

Has jurisdiction and control over marine fishes and shellfish. Promotes research and educational activities and does law enforcement. Furnishes training aids for schools and maintains a splendid educational exhibit hall at the Gloucester Point laboratory where school groups can visit.

DEPARTMENT OF CONSERVATION AND DEVELOPMENT, RICHMOND, VIRGINIA.

Promotes tourist trade travel, furnishes numerous films on Virginia, operates 8 state parks, several state forests and looks after the ground water resources in the Commonwealth. Forestry, water and mineral resources are handled by separate divisions in the Charlottesville office and are listed separately.

VIRGINIA FOREST SERVICE, CHARLOTTESVILLE, VIRGINIA.

Looks after the state forest resources of the Commonwealth and aids landowners and tree farmers in outlining good conservation practices. Furnishes forestry material, speakers and exhibits upon request.

DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION AND DEVELOPMENT, CHARLOTTESVILLE, VIRGINIA.

Has control and jurisdiction over the ground water resources of the state. Collects data on water flow, rainfall, etc. Provides some literature and occasional exhibits on state water resources.

OFFICE OF THE STATE GEOLOGIST, DEPARTMENT OF CONSERVATION AND DEVELOPMENT, CHARLOTTESVILLE, VIRGINIA.

Looks after the mineral resources of the state. Some literature and occasional speakers are available upon request.

STATE BOARD OF EDUCATION, RICHMOND, VIRGINIA.

Provides some material on resource conservation and has excellent library of conservation films. Valuable publications of other state agencies are frequently distributed on a pro rata basis to the schools by this agency.

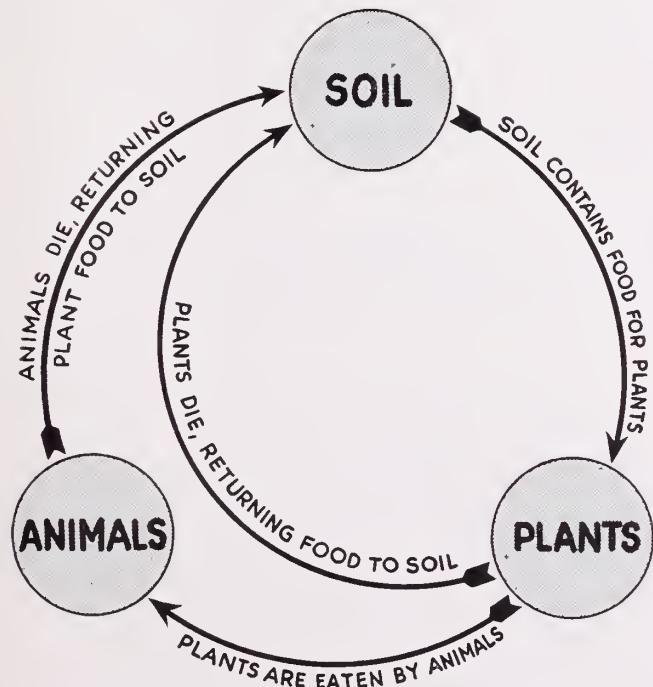
STATE WATER CONTROL BOARD, RICHMOND, VIRGINIA.

This agency is responsible for the control of pollution in the state. All sources of water pollution should be reported to this agency. It has some instructional literature and other material for schools.

STATE DEPARTMENT OF AGRICULTURE, RICHMOND, VIRGINIA.

Looks after the agricultural interests of the state by providing technical advice and guidance to farmers and landowners.

(Continued on page 21)



Life is a never-ending cycle, always changing, never static.



Reynard the hunter and the hunted

Br'er Fox is no saint in his rightful environment—and no demon of the woods, either. His good and bad points deserve to be heard.

NO ANIMAL is more traditionally Virginian nor subject of more controversy—good and bad—than the fox. Glowing accounts of the chase have been written since the time of George Washington and before. Each fall and winter the sight of black derby hats, red coats, and galloping steeds form a part of the state's landscape as fox hunting enthusiasts set out on horseback behind wailing hounds eager for the chase.

Two kinds of foxes inhabit Virginia as well as the other eastern and the midwestern states. These are the gray and the red. Both are similar in size and general

habits although the gray prefers the woodlands and marsh areas, while the red enjoys the more open countryside.

How do you tell them apart? That's easy. The gray fox is largely gray with some shades of orange and lacks the characteristic white tail tip of the red. The red is almost entirely red or orange except for its black stocking feet and black behind the ears.

Fox's Diet

The main controversy over the fox stems from his eating habits. Many farmers and sportsmen are prone to be

critical of the fox when they occasionally see signs of depredation to poultry and game.

Nelson Swink, a former graduate student at V. P. I., made an extensive study of the food habits of the fox and found that the major food item of the red fox was the meadow mouse. This item occurred 289 times (52 percent) in 549 fecal passages. Next came rabbit with 34 percent and opossum third, with 9 percent. Of all bird items, the domestic chicken appeared most frequently, occurring 36 times or 7 percent of the time. The investigator said that he believed most of the poultry that appeared in the study were chicks or chickens thrown away by the farmer.

Oddly enough the occurrence of bobwhite quail in 549 fecal passages appeared only once. This does not tend to reflect a true picture of the pressure exerted by the fox upon the quail, however, as it is known that seventeen quail were killed by foxes over the fifteen months of the study. Of these, twelve were found in the field where they had been killed, two were found at den sites and three quail were taken by foxes from quail traps used in a quail study.

Dr. Henry S. Mosby, Leader of the Virginia Cooperative Wildlife Research Unit at V. P. I. in Blacksburg, says in *The Foxes of Virginia*: "It seems reasonable to conclude from the extensive food-habit studies made on both the red and gray fox that these mammals are not serious predators of upland game birds."

In Alabama studies, according to Dr. A. M. Pearson of the Alabama Polytechnic Institute, quail occurrence in stomachs of foxes examined was about $\frac{1}{2}$ of 1 percent. Investigations in Maryland revealed wild turkey was found in the stomach of only 1 out of 38 red foxes.

A progress report of the Study of the Food Habits of the Red and Gray Foxes in Virginia, by C. A. Handley, provides information on the source of fox food in various

seasons. One fox out of 50 taken in January and February had eaten bobwhite quail. In another winter analysis 1 fox out of 34 had eaten quail. In summer and fall, quail was found in 1 out of 27 fox stomachs.

Enemies and Fur Value

Foxes actually have few enemies. Next to man, disease—rabies in particular—probably takes the greatest toll of both red and gray foxes each year. At times rabies may become epidemic in nature, and wipe out foxes from an entire area. At such times danger to livestock, poultry, and people is at a peak.

The value of fox fur has dropped appreciably in the past 20 years, now reduced to a mere few dollars. Gray fox pelts were never very valuable, but good quality reds brought up to \$30 and \$35 a pelt. That was when the ladies went in for the long-haired furs and before the fur depression of the thirties and forties began.

Home

The gray fox "holes" up quickly when pressed by dogs or runs out of the country. He makes his den in hollow trees, under cliffs, and in caves. Now and then he will "tree" from a dog. Hunters prefer the red fox much more for the chase. A red will *run* an endless trail and will often circle giving dogs and hunters a merry chase. Like his gray cousin he too makes his home in burrows and crevices.

The red fox carries its young for about 51 days, and the 4 to 10 young are born in the den in early spring.

Though reynard remains what he is, a hunter in his own right, and *the hunted* at other times, he should be credited for his integral part of the wildlife scene. He's a part of Virginia heritage and as such is distinctly and truly American.

NATIONAL PARK SERVICE, RICHMOND, VIRGINIA.

Richmond headquarters for national park activities in the northeast. Has some literature material, exhibits, and furnishes occasional speakers.

Commonwealth of Virginia (Non-governmental Agencies)

IZAAK WALTON LEAGUE OF AMERICA, STATE DIVISION HEADQUARTERS, C. I. VAN CLEVE, PRESIDENT, LYNCHBURG, VIRGINIA.

A private organization dedicated to the defense of soil, woods, waters and wildlife.

VIRGINIA FORESTS, INC., RICHMOND, VIRGINIA.

A private organization dedicated to the wise use and management of private timber resources in Virginia.

VIRGINIA RESOURCE USE EDUCATION COUNCIL, P. H. DEHART, CHAIRMAN, VIRGINIA EXTENSION SERVICE, VIRGINIA POLYTECHNIC INSTITUTE, BLACKSBURG, VIRGINIA.

A voluntary organization of state and federal and private conservation workers interested in the promotion of resource use education in Virginia.

U. S. Governmental Agencies (As suggested by the Office of Education, Federal Security Agency)

BUREAU OF AGRICULTURAL ECONOMICS, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Collects and disseminates agricultural statistics; acquires, analyzes, interprets, and diffuses useful economic information relative to agricultural production and distribution.

(Continued on page 23)

SUGGESTIONS (Continued from page 19)

VIRGINIA EXTENSION SERVICE, VIRGINIA POLYTECHNIC INSTITUTE, BLACKSBURG, VIRGINIA.

Promotes extension work in forestry, soil, and wildlife conservation. Provides numerous publications, technical advice, speakers and exhibits.

Commonwealth of Virginia (Federal Agencies)

GEORGE WASHINGTON NATIONAL FOREST, HARRISONBURG, VIRGINIA.

Looks after the 1,000,000 acre George Washington National Forest west of the Blue Ridge. Provides some literature, films, and occasional speakers.

THOMAS JEFFERSON NATIONAL FOREST, ROANOKE, VIRGINIA.

Looks after the 500,000 acre Jefferson National Forest in central and southwestern Virginia. Provides some literature, films, and occasional speakers.

SOIL CONSERVATION SERVICE, RICHMOND, VIRGINIA.

Provides some literature on soil conservation, occasional exhibits and speakers.

U. S. FISH AND WILDLIFE SERVICE.

Maintains 3 federal wildlife refuges in the state, all of which are open to visitors. The 3 refuges are Presquile Refuge below Richmond on the James River; Back Bay Waterfowl Refuge, Back Bay, Virginia, in Princess Anne County; and Assateague Waterfowl Refuge, Chincoteague Island, Virginia, in Accomack County.

How well do you know your

GAME MANAGER

the man behind the wildlife scene
on the national forests

By HAL MYERS, JR.



The game manager must be an all-round woodsman as well as a wildlife worker.

SINCE an increasing number of sportsmen plan their future hunting and fishing trips on the publicly owned land of the national forests, it is well to recognize the fellow who is working so hard to make Virginia's 1,500,000 public forest acres a better hunting and fishing ground.

Because of the close relationship between forestry and wildlife, the Virginia General Assembly in 1938 passed a cooperative wildlife management act, which resulted in a beneficial program between the Commission of Game and Inland Fisheries and the United States Forest Service. The one and a half million acres of public land within the two national forests of Virginia have been divided into wildlife management units ranging from 40,000 to 80,000 acres. In each unit there is a *Game Manager* responsible for the wildlife management activities. At present there are 24 men performing these duties, under joint supervision of the district forest ranger and the district game biologist.

Since Leopold has defined game management as "the art of making land produce sustained annual crops of wild game for recreational use," the game manager can be said to have numerous responsibilities and duties peculiar to forest-game work. In addition to a strong back, he depends on the selection of the right factors and the right controls in his wildlife management work. He might well be labeled as "a jack of all trades," since he must be an all-round woodsman as well as wildlife worker.

The governing factor for the game manager is the existing need within his territorial unit for habitat improvement for big game (deer and bear), and forest game

(turkey, grouse, raccoon, and squirrel).

A large part of the game manager's work is aimed at improving the character of the forest. Since the forest furnishes cover, browse, mast and other food, it is the duty of the game manager to establish and maintain small clearings from $\frac{1}{2}$ to $1\frac{1}{2}$ acres in size which serve as additional food and cover areas. In the selection of these clearings, abandoned fields and home sites are given first consideration. Other sites are selected according to needs of game, value of timber, land exposure, and fertility.

In making clearings, the game manager and his crew of laborers engage in a variety of activities. Usually a timber sale is required for the first cutting, followed by the clean-up operation and disposal of brush by burning or placing in wind rows. After clearing the areas, the so-called agricultural operations come in which include the taking of soil samples, purchase and use of proper fertilizer, preparation of soil for seeding, operation and maintenance of equipment, selection of seed and seeding to a desirable grass or legumes and so on. Other developments include work on trails, salt licks and water holes.

The maintenance of clearings and other wildlife areas requires a portion of the game manager's time. During the summer months, the clearings are sprouted, mowed, or treated with brush killer to hold down the growth of undesirable plants. Trails have to be kept open and many other operations must be performed to keep wildlife areas in good condition.

In some sections of the national forests, the game population demands the setting up of closed wildlife areas. The game manager is responsible for both the development and maintenance of these areas. Usually they are several thousand acres in size. Wire and posters, which-

*A contribution of Virginia's Pittman-Robertson Project No. W-17-D.



An excellent national forest clearing opened up to produce food for forest game.

ever is used for the enclosure, must be set up and maintained as long as such areas are in use.

Under the cooperative wildlife management program, the game manager is responsible for law enforcement on and adjacent to national forest lands. Serving as a special game warden of the Commission, he acts as an assistant to the county warden. His duties also include helping with game and fish stocking, issuing of various permits, and public relations work.

Fire prevention ranks high on the list of activities of the game manager. His crews are provided with fire fighting equipment and during the fire season are at the disposal of the district forest ranger.

Aside from the duties formerly mentioned, there are many other things the game manager must do. There's boundary marking, predator control, planting of food trees and shrubs, game census work, keeping of records



National Audubon Society photo by C. L. Broley
Improving the forest for such game as deer is one responsibility of the hard-working game manager.

and maps, maintenance of tools and equipment, and the like.

The game manager is a public servant, for he realizes the important role that sportsmen play in financing the work of wildlife improvement. As such, he is always *eager* and *willing* to lend a helping hand when and wherever his services are demanded.

As we move ahead in our wildlife program and see our deer and bear and turkeys increasing on the national forest lands, we might pay tribute to the man who works behind the scene. Let us keep in mind that while the wildlife manager is neither forest ranger, game warden, game biologist, timber operator, revenue officer—or *moonshiner*—he is an officer and a servant whose one aim is the conservation of the wildlife resources and whose work is geared to the services of sportsmen.

SUGGESTIONS (Continued from page 21)

BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Conducts investigations and experiments on problems related to the conservation and industrial utilization of agricultural commodities and seeks to develop new and more adequate uses for agricultural products through research in chemistry, physics, and related sciences.

BUREAU OF HUMAN NUTRITION AND HOME ECONOMICS, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Conducts research designed to aid families to make the best use of their resources so as to obtain the best returns in health and enriched living.

BUREAU OF INDIAN AFFAIRS, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Provides agricultural and industrial guidance for the conservation and improvement of the land through planned land-use, irrigation, erosion control, forestry management, and the development of natural resources. Provides a general health program and works for the economic, educational, social, and civic advancement of the Indians.

BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Responsible for surveying, managing, and disposing of public lands and their resources and for administering the mining and mineral leasing laws and the Taylor Grazing Act.

BUREAU OF MINES, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Responsible for making studies of economic problems affecting the mineral industries; for collecting and publishing data concerning mineral production in the United States.

BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Promotes the development of agricultural and industrial economics; constructs and operates multiple-purpose projects providing water for irrigation, hydroelectric energy, control of floods, aids to navigation, water for domestic and industrial uses, and other purposes.

EXTENSION SERVICE, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Provides leadership in all general educational programs of the Department for various action agencies and makes available to farmers, farm homemakers, and rural youth the results of research related to local farm and home conditions.

FEDERAL POWER COMMISSION, WASHINGTON, D. C.

Administers the Federal Power Act, regulates interstate sale of natural gas, conducts general investigations related to power resources.

FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Promotes the conservation of wildlife; administers federal wildlife conservation laws; acquires and maintains game refuges and preserves; engages in research on wildlife; furthers the extension of wise management and utilization of fishery resources of the nation.

FOREST SERVICE, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

Charged with the responsibility for promoting the conservation and wise use of the nation's forest lands, including, among other things, the general administration of the national forests; cooperating in programs for the protection and improved management of state and private forest lands; and conducting research in forest management, watershed protection, and utilization of forest products.

GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Carefully examines and classifies public lands as to their potentialities for mineral development and water power utilization.

NATIONAL FOREST RESERVATION COMMISSION, WASHINGTON, D. C.

Determines policies and approves programs for federal purchase of forest lands for the protection of watersheds, regulation of streamflow, and other national forest purposes.

NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Charged with the responsibility of administering the national parks and monuments.

OFFICE OF EDUCATION, FEDERAL SECURITY AGENCY, WASHINGTON, D. C.

Maintains cooperative relations with schools at all levels of learning in the United States and with international, national, regional, and state groups seeking to effect vitalized programs of conservation education.

OFFICE OF LAND UTILIZATION, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Responsible for coordinating and integrating the land-classification, land-use and management activities of the Department.

OIL AND GAS DIVISION, DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C.

Charged with coordinating and unifying federal policies on the conservation of oil and gas.

PRODUCTION AND MARKETING ADMINISTRATION, DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

By working through committees composed of cooperating farmers, this agency carries out certain provisions of the Soil Conservation and Domestic Allotment Act, as amended.

SOIL CONSERVATION SERVICE, DEPARTMENT OF AGRICULTURE, WASHHNGTON, D. C.

Aids in effecting desirable adjustments in land use designed to better human welfare, conserve natural resources, establish a permanent, balanced agriculture, and reduce the hazards of floods and sedimentation; prepares valuable teaching aids to help implement effective conservation education programs.

TENNESSEE VALLEY AUTHORITY, KNOXVILLE, TENN.

Responsible for the adoption of improved practices relative to the protection of the Tennessee River watershed and to the development and wise utilization of its soil, forests, fish and wildlife resources.

WATER RESOURCES POLICY COMMISSION, WASHINGTON, D. C.

A recently organized commission to aid in formulating a sound comprehensive water resources policy.

Non-governmental Agencies and Organizations

AMERICAN FORESTRY ASSOCIATION, WASHINGTON, D. C.

Publishes *American Forests*, a monthly magazine, and numerous other materials, designed to implement effective, nationwide conservation education.

AMERICAN FOREST PRODUCTS INDUSTRIES, INC., 1816 N STREET, N. W., WASHINGTON 6, D. C.

Issues monthly information digest on wood-dependent industries; other educational services.

AMERICAN NATURE ASSOCIATION, WASHINGTON, D. C.

Prepares books and other materials to stimulate public interest in various phases of nature and publishes *Nature Magazine*.

AMERICAN TREE ASSOCIATION, WASHINGTON, D. C.

Encourages conservation through the publication of books, bulletins, and other materials on forestry.

BOY SCOUTS OF AMERICA, NATIONAL OFFICE, 2 PARK AVENUE, NEW YORK, N. Y.

Encourages activity programs related to the conservation of selected resources.

CAMP FIRE GIRLS, INC., 41 UNION SQUARE, NEW YORK, N. Y.

Promotes conservation in many of its activity programs.

CONSERVATION EDUCATION ASSOCIATION, DR. RICHARD L. WEAVER, SECRETARY, CONSERVATION DEPARTMENT, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN.

Stimulates the development of sound education with respect to resource use.

CONSERVATION FOUNDATION, NEW YORK, N. Y.

Produces aids including *Conservation Handbook* and the Living Earth Series which includes four films.

DUCKS UNLIMITED, INC., 342 MADISON AVENUE, NEW YORK 17, N. Y.

Issues quarterly publication on American waterfowl. Dedicated to duck restoration.

EDUCATIONAL CONSERVATION SOCIETY, WOODSIDE, LONG ISLAND, N. Y.

Promotes the vitalizing of conservation education in schools.

FRIENDS OF THE LAND, 1638 NORTH HIGH STREET, COLUMBUS, OHIO.

Promotes an active program to develop understanding of wise land-use.

GARDEN CLUB OF AMERICA, CONSERVATION COMMITTEE, 15 EAST 58TH STREET, NEW YORK 22, N. Y.

Distributes conservation education materials, prepares for school use data on various phases of conservation.

IZAAK WALTON LEAGUE OF AMERICA, INC., CHICAGO, ILL.

Publishes *Outdoor America*; prepares and distributes materials on woods, waters, and wildlife; and seeks to enlist the interest and support of sportsmen and others in the cause of conservation.

NATIONAL AUDUBON SOCIETY, 1130 FIFTH AVE., NEW YORK 28, N. Y.

Publishes *Audubon Magazine* and advances public understanding of the value and need of conservation of soil, water, plants and wildlife and the relation of their intelligent treatment and wise use to human welfare.

NATIONAL PARKS ASSOCIATION, WASHINGTON, D. C.

Publishes *National Parks Magazine* and other materials designed to further the protection and wise development of national parks.

NATIONAL WILDLIFE FEDERATION, 232 CARROLL ST., N. W., TAKOMA PARK, WASHINGTON 12, D. C.

Maintains information service through the semi-monthly publication of *Conservation News* and the more frequent publication of *Conservation Report*.

OUTDOOR WRITERS' ASSOCIATION OF AMERICA, 7 ST. PAUL ST., BALTIMORE, MD.

Publishes outdoor packets entitled "Outdoors Unlimited" which covers valuable information on conservation, the outdoor writing field, and resources legislation.

SPORT FISHING INSTITUTE, BOND BUILDING, WASHINGTON 5, D. C.

A non-profit organization promotes conservation, development and wise utilization of national recreational fisheries resources; advances and encourages fishery science and fishing; assists state, federal and private agencies in the operation of their programs.

Publishes "Sport Fishing Institute Bulletin" and "Bulletin Supplement."

WILDERNESS SOCIETY, 1840 MINWOOD PLACE, WASHINGTON, D. C.

Publishes *The Living Wilderness* and contributes toward the protection and preservation of remaining wilderness.

WILD FLOWER PRESERVATION SOCIETY, 3740 OLIVER ST., WASHINGTON, D. C.

Prepares and distributes information and materials on the preservation of wild flowers.

WILDLIFE MANAGEMENT INSTITUTE, 709 WIRE BUILDING, WASHINGTON 5, D. C.

A non-profit organization dedicated to the wise use and management of America's wildlife resources.



The Albatross: Problem of Ancient and Modern Mariners

The Ancient Mariner of Coleridge's poem isn't the only one plagued by an albatross problem. The Navy and Air Force called for help to lessen the hazards to aircraft from albatrosses on Midway Island, in the Central Pacific, and the Department of the Interior assigned two wildlife biologists of the Fish and Wildlife Service to work on the problem.

Ten accidents have been caused this year by collision of aircraft with these large sea birds which have a wing-spread of seven feet. The Defense Department fears that, with the increased use of jets, some of the "gooney birds" may be sucked down the forward induction vents, causing the planes to explode.

A similar problem arose in the South Atlantic during World War II and Dr. James P. Chapin, of the American Museum of Natural History, found that the sooty terns on Ascension Island would move elsewhere if all their first laying eggs in areas close to the air-strip were destroyed. This procedure will be tried on Midway.

Key Deer Making a Comeback

The U. S. Fish and Wildlife Service has estimated the current herd of diminutive Key deer, which inhabit the Florida Keys, as 94 animals. This is about double the estimate for 1952 when the National Wildlife Federation devoted its annual Wildlife Week campaign to the Key deer problem and raised a special fund for the protection of the endangered species.

Smallest of all American deer, the Key species is about the size of a collie when full grown. The average adult is about 27 inches tall, 38 inches long and weighs 30 pounds. The young are as small as rabbits.

Protection measures have so far saved them from extinction, but biologists warn that a herd of 200 is the minimum for safety and that preservation of an area of their unique island habitat in its natural state is essential to survival. Though once abundant, the tiny deer have suffered severely from illegal hunting and the encroachment of civilization.



"He never offers to row the boat!"

State Forester's Report on "Littleleaf"

State Forester George W. Dean has received important information from the research on "littleleaf", a disease of shortleaf pine, which has been under investigation since 1940.

"Our foresters", writes Dean, "have found evidence of littleleaf in most of the shortleaf pine belt which ranges from Culpepper and Spotsylvania counties south through the Piedmont area to the North Carolina line. The most severe damage occurs in Prince Edward, Goochland, Buckingham, Cumberland, Chesterfield, Appomattox, Amelia, Charlotte and Mecklenburg counties."

Stumpage value of littleleaf victims is estimated at five million dollars a year. Dean reports that symptoms arise as the result of a nitrogen deficiency in the tree, associated with the dying of the new root tips and fine roots. First sign is a slight yellowing of the foliage and, as the disease progresses, the yellowing becomes more pronounced. Needle length and shoot growth decrease and finally the tree is conspicuous with its short, scant and yellow foliage at the ends of the branches.

Trees affected with littleleaf may go on living as long as six years, but are not known to recover naturally. Application of large amounts of inorganic nitrogen to the soil is a preventive. Though such a measure is impractical in forest stands, yard and park trees can be protected by the application of one ton of 5-10-5 commercial fertilizer plus one-half ton of ammonium sulphate per acre.

Dean recommends where only an occasional tree is diseased, cutting lightly at 10-year intervals. Cut on a six-year cycle, removing all diseased or suspected trees, when 10 to 25 percent of the stand is diseased. When more than 25 percent show littleleaf symptoms, he advises cutting all shortleaf pine as soon as merchantable. "Favor loblolly pine as much as possible in cutting and reforestation practices", is his final word on the problem.

Fool Rabbits With Foil

An orchardist near Savannah, Ohio, has been successfully using aluminum foil to protect his fruit trees from hungry rabbits and other small rodents. According to the National Wildlife Federation, aluminum foil crimped about the base of the tree thwarts the pests, yet allows room for the tree to grow.

Field Force Notes



Squirrels Rampant in Arlington

Squirrels are going bezerk in Arlington, according to Commissioner Homer Bauserman, and the gray squirrel situation is becoming very serious, especially since an ordinance prohibits hunting of any kind and the squirrels are breeding out of all proportion to the food supply.

Hungry squirrels have been biting people, breaking into attics, getting into garbage, even causing car trouble. Garages report many cases of cars stalled because squirrels, lacking certain minerals, had been feeding on the wires inside the hood. They have also been eating the lead insulation of telephone and electric wires and the power companies have been putting up salt blocks to divert them.

Wildlife Research Shocks Squirrels

Biologists assigned to the VPI Cooperative Research Center discovered that a number of squirrels caught in live-traps during a census count died of shock. Apparently the nervousness caused by being caught, even though in a live-trap which did not harm them, was enough to cause death.

One curious aspect of such deaths by shock is that they seem to occur periodically. Some years it happens and other years it doesn't.

The trapping is being done to compute the population of squirrels on a 17-acre woodlot on the VPI farm. When the population is estimated, the researchers plan to remove about 40 percent of the squirrels from one area but not from the other. By this means they hope to gauge the effect of hunting on populations and to arrive at even better wildlife management practices.

Unhappily, the squirrels which die of shock throw off the statistical formulae used to compute populations.

Warden Surber Retires

After 31 years of service as game warden for the Commission of Game and Inland Fisheries, C. Walter Surber, of Craig County, officially retired on June 30, 1954.

The game wardens of the Jeb Stuart District, of which J. W. Francis is supervisor, presented Mr. Surber with a nice watch. "Warden Surber", said Mr. Francis, "was an outstanding public servant and won the admiration and respect of the people of Craig County. His services as game warden and creditable citizen will be greatly missed by all who knew and loved him."

A happy retirement, Mr. Surber!



Mr. C. Walter Surber, retiring game warden of Craig County, is presented a watch by the Hon. Cecil E. Wright, Trial Justice of Newcastle, Virginia.

Pet Bass and Chinese Chestnuts

G. F. Gravatt, senior pathologist, Section of Fruit and Nut Crops of the U. S. Department of Agriculture Research Service, noticed our note on the pet bass in Halifax Pond and tells us of an interesting case of taming fish at Nassau, Bahama Islands, which he observed while working on a coconut disease for the International Caribbean Commission.

"An American lady who was losing some of her coconuts from this disease had a beautiful place on the water and she had tamed a number of

different sea fish so that they would come right up and feed from her hand when she went out swimming."

But Gravatt has his doubts about taming fish which are later to be angled for, saying: "I have a pond stocked with bream and bass which is extensively fished. The question comes up whether if we had some of the bass tamed and made into pets would people still enjoy catching and eating them?"

Enclosed with Gravatt's letter is a copy of Farmers' Bulletin 2068, published by the U. S. Department of Agriculture, which he suggests we call to the attention of our readers. It may be obtained free of charge. "You will note on page 17", he writes, "the picture of the Chinese chestnut planting in Amherst County."

He suggests too that those who have planted chestnuts which seemed to be a complete failure check up on those old plantings since they not infrequently sprout, revive and some of the trees make a favorable showing after the site begins to improve.

"Sometime when you are over around Lexington, Virginia", adds Gravatt, "look at the Chinese chestnuts in the yard of my good friend Senator Robertson."

Ninety-Seven Deer Bagged During First Two Days in Warren

Game Warden James W. Simpson, of Warren County, reports that a total of 97 deer was killed during the first two days of the hunting season in that county. Ninety-five of them were shot and reported in Warren County while the other two were shot in Warren, reported in Page and Shenandoah counties.

An estimated 350-500 hunters turned out for the first day of the season and about half the number was believed to have come from outside the county.

Wildlife Questions and Answers

Ques.: If a deer has been wounded, is one permitted to continue the chase if it should lead across posted property?

Ans.: You should have permission from the landowner.

Ques.: Can you tell me something about the origin of the Chesapeake Bay Retriever?

Ans.: There is no exact record of the development of the Chesapeake, but according to a chapter in "American Sporting Dogs" by Walter Roseler, there is considerable evidence of their history. Two shipwrecked Newfoundland retriever puppies, later called "Canton" and "Sailor" and famous as duck retrievers are traditionally named the progenitors of the Eastern and Western Shore dogs. From the beginning, the Chesapeake was subject to rigid selection based on efficiency. "Sailor" and "Canton" are said to have been bred to local yellow and tan hounds or 'coon dogs to begin the Chesapeake Bay breed.

Ques.: I have purchased a farm in Louisa County and intend to spend as much of my time there as my business permits, pending eventual retirement. Do I need a license to hunt on this property?

Ans.: A license is not required to hunt on property owned by you. However, if you are not a legal voter or reside continuously six months before the date of application for a license, you are required to have a non-resident license to hunt off your property.

Ques.: Are the eggs of snapping turtles edible?

Ans.: Yes, the eggs, as well as the flesh, of snapping turtles are eaten, but must be fried, because they will not boil hard.

Ques.: Is it unlawful to carry a .22 caliber target pistol with me while hunting deer?

Ans.: There is no law against carrying an unconcealed weapon in Virginia, but it is unlawful to kill game birds or game or furbearing animals with a pistol.

Ques.: How large do starfish become?

Ans.: The largest living starfish is the sunflower star which reaches a diameter of two feet or more on the North Pacific coast.

Ques.: What are the favorite foods of the Virginia rail?

Ans.: It seems to be especially fond of locusts, grasshoppers and beetles, of wild rice, wild oats and the seeds of grasses and reeds. It is a rapid and excellent climber and can scale rushes, shrubs, vines and even vine-covered trees in its search for insects, seeds and berries. It will take small crustaceans, even small snakes and fishes, and also eats earthworms, snails and other small aquatic animals of the fresh-water marshes.



"I'm beginning to think we'll take home nothing but a craving for meat."

Ques.: What kind of bird is the hooded sheldrake?

Ans.: The hooded sheldrake is another name for the hooded merganser. Few birds have more alternate names than this one which is also known as wood sheldrake, fish duck, pond sheldrake, pickaxe sheldrake, spike-bill, hairy-crown, hairy-head, saw-bill diver, water pheasant, kokus sheldrake. It is the smallest of the mergansers, from 16 to 19 inches long, with a spread of 24-26½ inches. It has a short slender narrow bill. The male is black and white with a white-patched crested head, two black bars on the front of the wings and brown sides. The female has a darker breast than other mergansers.

Ques.: I thought that elk were extinct in Virginia, but recently I heard that there were small herds of elk in the state. Can you give me some information about them?

Ans.: Early writers suggest that elk were abundant in colonial Virginia, but they were already scarce by the time Thomas Jefferson wrote of them in 1781. They were restocked in Virginia from Yellowstone National Park in 1917 and again in 1935. By 1940 Virginia's two elk herds had an estimated 125 animals and there were three and four-day open seasons during the 1940's because of the damage the elk were doing to crops. This year, however, there is no open season. The herds range in Bedford and in the Giles-Bland area.

Ques.: Is it lawful to hunt ducks in an open boat on the Chickahominy?

Ans.: Yes, provided you do not hunt or shoot within 500 yards of a blind and do not trespass on private waters or posted land, with a shotgun, and provided that the boat is not being operated by an inboard or outboard motor at the time.

Ques.: How are bats able to fly in dark caves or among trees at night without hitting anything?

Ans.: It was long a great mystery, but finally it was discovered that they operated on the "radar principle." A continuous series of high-pitched squeaks, too high for human ears to hear, are echoed by obstacles usually in time for the bat to avoid them. However, this may not always work, as in the case of barbed wire fences.

Ques.: In what counties west of the Blue Ridge is it legal to hunt bear with dogs?

Ans.: It is illegal to hunt bear west of the Blue Ridge Mountains with dogs during the open season for hunting deer. After the close of the deer season it is legal in all the counties which have a season on bear to hunt them with dogs.

Ques.: What is the largest rodent in North America?

Ans.: The beaver is the largest North American rodent and one of the most valuable furbearers.

Ques.: What is the deepest diving duck?

Ans.: Probably the Old Squaw. They have been accidentally caught in fish nets as deep as 180 feet below the surface.

Hey! Have you entered The 8th ANNUAL WILDLIFE Essay Contest

CONTEST RULES

1. Students from all Virginia schools, grades 5-12 inclusive, are eligible.
2. Essays must be submitted through the schools participating. Schools to be eligible must send in an official entry card provided for the purpose.
3. Each essay submitted must bear the following information in the upper right hand corner: name, sex, age, grade, address, school, county, teacher.
4. Grand prize awards (\$50 awards only) cannot be given to winners two years in succession. Also, Commission employees and their families are not eligible.
5. Scholarship award good only in Virginia colleges and universities. Award to go to top 12th grade winner or next alternate.
6. Award to school to be made on basis of quantity and quality of essays submitted.
7. Final judging will be done by a panel of three judges—one from each sponsoring organization and one from the State Board of Education. Teachers are urged to indicate their choice of best essays, but to send in *all* their essays.
8. All essays MUST be mailed first class prepaid, to the Commission of Game and Inland Fisheries, Box 1642, Richmond 13, Virginia. Essays must be mailed and postmarked not later than February 28, 1955.

There will be seven prizes in each of the eight competing grades. Scholarship winner, grand prize winners and winning school representative will come to Richmond as guests of the sponsors to receive their awards. Others will be given awards in the schools.

Two hundred certificates of merit also will be awarded in addition to the money grand prizes.



\$14000 in PRIZES

Ends February 28, 1955

One, 12th Grade, \$400 College Scholarship

SUBJECT: Our Natural Resources (soil, waters, plants, wildlife)—Their influence on man.

SPONSORED BY: The Virginia Division of the Izaak Walton League of America and the Virginia Commission of Game and Inland Fisheries.

APPROVED BY: Virginia State Board of Education.

DATE: OCTOBER 1, 1954, to FEBRUARY 28, 1955.

PRIZES

One 12th grade, college scholarship	\$ 400
Eight grand prize awards, \$50 each, one for each grade, totaling	\$ 400
Eight second prizes, \$25 each, one for each grade, totaling	\$ 200
Eight third prizes, \$15 each, one for each grade, totaling	\$ 120
Sixteen honorable mention prizes, \$10 each, two for each grade, totaling	\$ 160
Sixteen special mention prizes, \$5 each, two for each grade, totaling	\$ 80
One school prize	\$ 40
Grand total	\$1,400

ENDORSED BY: Virginia Resource Use Education Council and Resource Use Committee, Virginia Academy of Science